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NEW HAMPSHIRE
AGRICULTURAL EXPERIMENT STATION

Strawberries for New Hampshire

I. Culture II. Varieties

H. F. HALL.

NEW HAMPSHIRE COLLEGE
OF
AGRICULTURE AND THE MECHANIC ARTS
DURHAM, N. H.

Fig. 5.— The Skinner system in operation in the strawberry field of Wilfrid Wheeler of Concord, Mass.

STRAWBERRIES FOR NEW HAMPSHIRE.

BY H. F. HALL.

Introduction.

In preparing this bulletin, the author has two objects in mind. First, to interest the general farmer and amateur gardener to the end that all such may produce a liberal supply of this delicious and healthful fruit for home use, believing that more real pleasure and benefit can be obtained from a small plot of land when devoted to this crop than in almost any other way requiring an equal amount of labor. Even where the native or wild berries are plentiful and may be had for the picking, it is cheaper to grow the cultivated ones in the garden when the cost of picking and hulling is taken into consideration, to say nothing of the loss caused by tramping down the grass when gathering the former.

Second, to assist those who are now growing this crop in a commercial way for nearby or distant markets, as well as others who might profitably do so. While the price is not equal to that obtained twenty years ago, with the improved varieties of today together with the better knowledge of growing and handling the crop, as large net profits per acre are now being obtained as at any time in the past. The demand for strawberries when well grown and marketed in an attractive manner is increasing thruout the state and in fact the country as a whole. The old cry that the business is being overdone was uttered only by the short-sighted person who was unfamiliar with the workings of the law of supply and demand, which teaches that a crop well grown, honestly packed and properly sold stimulates trade, thereby increasing the demand.

I. CULTURE.

Selection and Preparation of Soil.

In selecting land for strawberry growing, avoid very sandy as well as very heavy and poorly drained soil. A medium loam that is deep and retentive of moisture yet well drained will give best results. Sandy soil with a southern exposure will produce an early crop, but is usually lacking in moisture when most needed, therefore requiring special attention in the way of irrigating and mulching. Cool, heavy soil with a northern exposure should be selected if a late crop is desired. Low land, if well drained, may be used. In such a location there is, however, greater danger of frost injury of the blossoms than on higher slopes. Sod land is undesirable for two reasons; first, because of its poor physical condition and second, danger of damage by the white grub *(Lachnosterna fusca),* which is usually abundant on sod land and very destructive in a newly set strawberry field. Land that has been planted to hoed crops, to which liberal annual applications of stable manure have been applied for one or more years and kept free of quack grass and weed seeds by frequent cultivations, may be considered as well prepared for this crop. Further improvement in the case of heavy soil may be made by seeding to clover about July 20, following the harvest of early peas, the clover to be plowed under the following spring just before setting the strawberry plants. Thoro preparation of land in the way of plowing and harrowing will repay all extra expense. If stable manure is to be applied to land that has been cropped the previous season, it should be plowed deeply, the manure then spread and harrowed in, followed by a second plowing of medium depth and a very thoro harrowing. By this method a thoro preparation is given, while the manure is properly placed to feed the strawberry plants, which root deeply, rather than the young weeds.

Fertilizing.

The amount of stable manure or chemicals to be applied will largely depend upon the past treatment of the land. If in a

fair state of fertility, as indicated by the production of a fair crop of corn or potatoes the previous season, either of the following methods may be safely followed:

1. An application of 15 to 18 cords per acre of stable manure plowed in.

2. When stable manure is not plentiful, the following method is recommended: 8 to 10 cords manure plowed in as suggested above, supplemented with 75 bushels of unleached hard wood ashes and 600 pounds fine ground bone harrowed in before setting the plants.

3. Where chemicals alone are to be used, 1,500 to 2,000 pounds per acre of the following mixture broadcasted and harrowed in just before setting the plants is recommended:

FORMULA A.

100 lbs. nitrate soda	Nitrogen	2.5%
500 " tankage	Phos. acid	10
1000 " acid phosphate		
400 " muriate of potash	Potash	10.

When desired 75 to 100 bushels of unleached ashes may be used in place of the muriate of potash.

Except when ashes are used, an application of 1,000 to 2,000 pounds of lime per acre usually proves a good investment.

To stimulate plant production the first year, 300 to 500 pounds per acre of the following mixture should be applied along the row during the last of June or first of July. This application should be made only in case the runners are few or lacking in size.

FORMULA B.

500 lbs. nitrate of soda	6% nitrogen
500 " tankage	10% phosphoric acid
1000 " acid phosphate	

As a top dressing during the fruiting season, 100 to 200 pounds nitrate of soda applied when plants are in blossom will increase the size of the fruit and the total yield. With other

conditions equal potash and phosphoric acid have a tendency to produce earliness, solidity, quality and color in the strawberry, while excess of nitrogen tends to produce heavy foliage and late maturity, with large, soft, irregular, light-colored fruit.

Setting Plants.

Spring is the best season for setting, the time recommended being from May 1 to 10. Use only plants of the past season's growth which may be distinguished by the light color and thrifty appearance of the roots, while the roots of old plants are dark brown in color. Prepare plants for setting by removing dead leaves and trailers, as well as all large new leaves, leaving not over one medium-sized leaf on a plant; also shorten roots, if long, to three or four inches; plant in rows four feet apart, setting the plants 18 to 24 inches apart in the row, depending upon the freedom of varieties to set plants. Secure straight rows by marking out or by the use of a line. Set plants firmly in moist soil with roots well spread, being careful to set

Fig. 1.—A two-year old strawberry field, showing the wide matted rows; plants were set 18 inches apart in rows every 4 feet; walks 15 to 18 inches wide.

the same depth as when standing in the old bed. In moving plants from old to new location, they should be kept moist and covered to prevent damage from evaporation and set as quickly as possible after being dug. If necessary to purchase plants, secure them from a nearby grower if possible, as packing in small, close bundles and shipping long distances is a devitalizing process no matter how much care is exercised at both ends of the journey. Potted plants for summer and fall setting are too expensive for commercial planting and should only be considered by the small grower.

Varieties.

The large number of highly advertised varieties, only a few of which are adapted to any one combination of climate, soil, markets and methods of growing, renders selection a very important as well as difficult operation for the beginner. A variety profitable in the hands of one grower on a certain kind of soil may be unprofitable when grown by a neighbor or by the same person on other parts of his farm, thus proving there is no "best" variety.

For home use, early, medium, and late varieties should be selected to secure a succession of fruit. In a commercial way when grown for distant markets, early varieties are selected for northern markets and late sorts for southern shipment. Quality is of greatest importance when intended for home consumption, while yield, size, color and firmness are usually placed before flavor in a market berry. In answer to the question, "Based on your own experience, what variety or combination of varieties do you consider the most profitable for market growing?" asked of six leading strawberry growers in central New England, the following replies were received:

a. Sample and Brandywine.

b. Sample and Senator Dunlap.

c. Fairfield for early, Sample and Mead for medium, Steven's Late Champion for late.

d. Minute-man and Parson's Beauty.

e. Glen Mary.

f. Sample and Abington on medium to heavy soil; Senator Dunlap and Haverland on light to sandy soil.

From the above it would appear that the Sample is a general favorite in this section, which is only added evidence to the results obtained at this Station; in fact all the varieties named above we have rated among the best in our plots each year. For description of the above and other varieties, see accompanying list.

Sexes in Strawberry Flowers.

Under this head the different varieties may be divided into two classes: first, the imperfect pistillate or female; second, the perfect, bi-sexual staminate or male. Some of the best commercial varieties belong to the former class, but when standing alone will produce little fruit, it being necessary to plant one row of

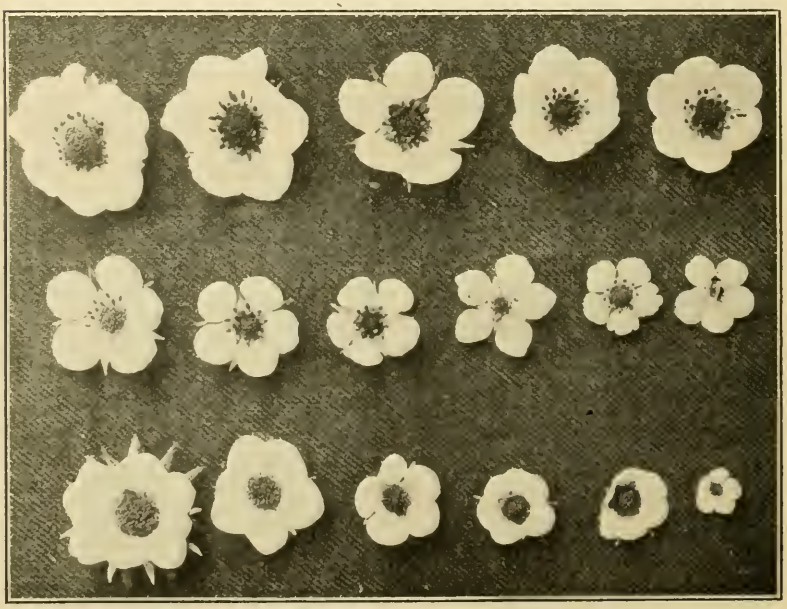

Fig. 2.—A group of strawberry blossoms, those shown in the lower row being imperfect or pistillate, the upper rows perfect or staminate.

a perfect flowering variety to every two to four rows of imperfect kinds to insure a good set of fruit. Fig. 2 shows a collection of strawberry blossoms. Those in the upper row having a large number of stamens are good pollenizers, while those shown in the middle row carry only enough pollen for self-fertilization, being of little value to set with imperfect flowering sorts for furnishing pollen. It is therefore apparent that all perfect flowering varieties are not good pollenizers and that the per cent of perfect flowering plants to imperfect ones necessary for perfect pollination will depend upon the pollen production of the perfect sorts.

Cultivation.

Good culture at a small expense is obtained by frequent and timely stirrings of the soil. The extermination of weeds and grass after they become well established is a slow and expensive

Fig. 3.— Showing a short row of strawberry plants too thick for best results.

operation. Cultivation ought, therefore, to begin soon after the plants are set and be repeated as often as necessary until late fall. The horse cultivator should be run close to the row until runners begin to set, when it will be necessary to narrow in the cultivated space at each working until about 18 to 20 inches are left as a walk. This space should be kept clean by cutting off encroaching runners with the hoe or by the use of a runner cutter, which may be attached to the horse cultivator. In cultivating and hoeing the land should be kept as nearly level as possible.

Training the Runners.

The most common error made by the beginner in strawberry growing is that of securing an "over-stand" of plants. Be-

Fig. 4.—A desirable stand of plants 6 inches apart.

lieving that the amount of fruit from a certain area will be in proportion to the number of plants and blossoms thereon, plants are frequently set close when starting the bed and the late runners brushed along the row by the cultivator instead of being

removed. The area necessary for the full development of one plant is often occupied by three to five plants, which, having a greater number of leaves, evaporate more soil moisture and after the first picking produce only small inferior berries, often having hard, undeveloped tips. Hand thinning of plants is not advised, neither is it necessary, as a proper stand may be secured by spacing the plants when setting according to the growth and later training the runners to vacant spaces when hoeing and cutting off the late runners which extend into the walks. Fig. 3 shows an over-stand with plants 3 inches apart each way. Fig. 4 shows a proper stand with plants 6 inches apart.

The following table gives the results obtained at this Station of an experiment to show the relative value between thick and thin spacing.

VARIETY.	DISTANCE.	YIELD IN QUARTS PER ACRE.		
		No. 1 Berries.	No. 2 Berries.	Total.
Sample	Plants 3 in. apart each way	3521	2146	5667
	" 6 " " " "	8028	1652	9680
	" 8 " " " "	6796	1041	7837
Brandywine	Plants 3 in. apart each way	1609	1313	2922
	" 6 " " " "	4810	943	5753
	" 8 " " " "	4963	424	5387
Glen Mary	Plants 3 in. apart each way	3458	2354	5812
	" 6 " " " "	6615	1208	7823
	" 8 " " " "	5182	1188	6370

Irrigating.

Strawberries contain over 90% of water, therefore requiring a large amount of moisture in the soil during the fruiting season in order to produce a heavy crop of large berries. Irrigation is expensive and is not considered a profitable venture by most commercial growers. By avoiding an over-stand of plants and retaining the natural soil moisture by summer mulching, a good crop should be obtained in an average season without resorting

to artificial means of applying moisture. Should it seem under certain conditions advisable to irrigate, the method to adopt will depend largely upon the water supply. If convenient to use a pipe system, the Skinner is considered the best by growers who have tried several methods. Figs. 5 and 6 show the Skinner system installed and in operation. With a pressure of 40 pounds and pipes located 7 feet from the ground, water is thrown 35 feet on each side, thus covering 70 feet and requiring about 225 lineal feet of pipe and 225 nozzles at a cost of about $60.00 per acre, including labor of installing. This outfit will last a number of years and may be moved to other locations at a small expense.

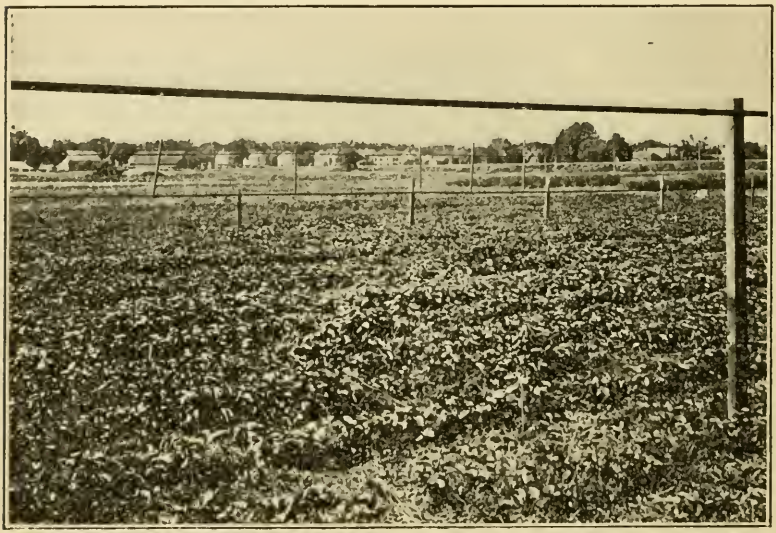

Fig. 6.— Showing both high and low method of piping for overhead irrigation. Pipe lines should run parallel with rows.

Mulching.

Winter mulching.—The object of mulching strawberries during this season of the year is to prevent winter-killing caused by freezing and thawing of the soil during an open winter. It should be applied just before or directly after the ground has

frozen, which will usually be the last half of November. The material used should be free from weed seeds and heavy enough to prevent its being moved by strong winds. Coarse marsh hay and straw are among the best materials, while pine needles, leaves of deciduous trees, corn stalks, strawy manure and boughs of evergreen trees may be used with good results. Cover evenly and lightly so that part of the foliage may be seen thru the mulch. The finer the material, the thinner it should be applied. Over-mulching is as bad as not mulching at all. When light material is used, it is advisable to apply brush or similar material to prevent lifting by heavy winds.

Summer mulching retards soil evaporation, keeps the land free from weeds and provides a clean bed for the berries to rest upon. The winter mulch, if not too coarse, may be used for this purpose by raking a portion into the walks, leaving over the row as much as the plants can grow thru. Some hand work may later be necessary in helping the plants thru if the mulch is heavy or very fine.

Harvesting and Selling.

To prevent loss from over-ripe fruit and secure uniform firmness, strawberries should be picked every second day during mid-season when weather will permit. Do not pick or handle fruit when wet. In picking, be careful to retain hull or calyx and avoid bruising. If all small decaying and inferior berries are rejected by the pickers, it will be unnecessary to repack before shipping, otherwise they should be poured out into other baskets and all undesirable berries removed. Each basket should be well shaken to prevent settling during transit. The top row should be leveled or faced and contain a fair sample of the contents of the basket. Do not allow berries to stand in the sun after gathering.

When grown in large quantities a board shelter or tent should be erected, where the fruit may be received and prepared for shipment by the packer. Market as soon as possible after picking.

Fig. 7.— Harvest time on a Concord, Mass., strawberry farm. Yield 350 bushels per acre; variety, Glen Mary.

The conventional bushel crate is best for distant shipments or ordinary fruit when sold in the home market. The twenty-one basket tray shown in Fig. 8 is recommended only for handling very fancy berries for nearby markets, where team delivery is possible and is not adapted to any other means of transportation. The dimensions of above tray are as follows: 38 inches long, 17 inches wide, 5 inches deep (inside measurements).

Home markets will usually prove more satisfactory than those at a distance, altho a fancy mark of berries will often bring more in a large market than in a small one. Most of the berries sold in the Boston and New York markets are grown twenty to forty miles outside.

Old Beds.

Strawberry beds may be allowed to fruit one or more seasons, depending upon the fertility of soil, freedom from weeds, stand of plants, etc. After the first harvest, if bed is to be retained another year, 600 to 800 pounds per acre of formula A should

be applied broadcast, all weeds and grass cleaned out, walks cultivated unless heavily mulched, and the old weak plants removed. Old plantations produce earlier fruit than new ones, the picking season is usually shorter and the fruit smaller after the first few pickings.

Fig. 8.—21 basket tray for handling fancy berries in nearby markets. Bottoms should be cleated to prevent telescoping when piled in tiers.

Estimated Cost of Production, with Average Yield and Profit, from One Acre of Strawberries.

Interest and tax on land (2 years),	$4.00	
Plowing,	3.00	
Harrowing,	3.00	
Fertilizer,	50.00	
Plants,	30.00	
Setting plants,	10.00	
Cultivation,	50.00	
Training and cutting runners,	10.00	
Fall mulch,	10.00	
Adjusting mulch for summer.	10.00	
Total cost of growing,	$180.00	
Crates and baskets,	30.00	
Cost of picking 8,000 qts. at 1½c,	120.00	
Total outlay,	$330.00	
Value of an average crop, 8,000 qts. at 8c (wholesale)		$640.00
		330.00
Net profit,		$310.00
Annual profit,		$155.00

The above is believed to be a conservative estimate under average conditions. In some cases the profits have been much greater; in others less. The grower who retails his crop or grows fancy berries for wholesale will consider the above price as being low, while the grower who ships ordinary berries to distant markets to be sold by commission men will doubtless regard it as slightly above the average.

II. DESCRIPTION OF VARIETIES.

The following notes were taken from tests on the college grounds. The list contains many new varieties, together with some older ones, for comparison. The soil was rather light and stony and quite badly affected by drouth during the past season. The land was in a fair state of fertility, being fertilized similar to directions given under culture in preceding chapter. The illustrations show berries of varieties named slightly below the average natural size.

Abington.—(*Perfect*).

Many stamens; plants very vigorous; abundant foliage; clusters large; season second early to medium; berries large, color medium scarlet; shape roundish conic; flesh only moderately firm, of good quality; yield medium to good; a very promising, perfect flowering sort for nearby markets. A good pollenizer to grow with imperfect flowering varieties.

Advance.—(*Perfect*).

Plant medium in size; leaf very light green; produces a fair number of plants; season medium; size of berries somewhat above medium; shape long conical; color medium; flesh firm, rather tart; yield fair; very similar to Haverland.

Almo.—(*Imperfect*).

Fruit clusters large; plant medium to large; quite vigorous, having few runners; inclined to grow in large stools; season early; berries short conical, blunt with many fan-shaped tips; size medium; color deep red; flesh firm, of fair quality; moderately productive; early fruit quite attractive in appearance; size small after mid-season.

Arizona.—(*Perfect*).

Plant medium in size; clusters many and large; season medium; berries medium to large; shape short conical with

blunt tip; color light to medium; quality above medium; flesh rather soft; color light; yield medium; berries hulled badly in picking; fruit too soft and light.

Arnout.—(*Perfect*).

Plant large; runners few; season medium to early; berries medium to large; shape medium to long conical, with blunt tip inclined to be wedge-shaped; color medium red; flesh firm and of good quality; yield above medium; some promise for commercial growing.

August Luther.—(*Perfect*).

Plant medium in size; season early to medium; berries above medium in size; shape long conical; color deep scarlet; quality medium to good; flesh moderately firm; yield good; berries run small after mid-season, otherwise a fair market variety.

Auto.—(*Perfect*).

Plant quite large; runners many; season medium; berries medium to large; irregular, slightly necked; obtusely conical; color medium to light; flesh rather soft and light; quality fair; yield medium; similar to Uncle Jim; not recommended.

Autumn.—(*Imperfect*).

Plant fairly vigorous, good size; leaf small and dark; stem short and slender; does not produce runners growing in stools; season medium; berries small; shape short, roundish, conic; color medium; flesh moderately firm; quality fair; fruiting season short; yield light; said to be an everbearing variety; can be made to produce its fruit in fall only by removing the early flowers; worthless for market; may be of some value where fall fruit is desired for home use.

Beaver.—(*Perfect*).

Plant medium in size; sets a medium number of runners; season early to medium; berries of medium size, of round coni-

cal form; color medium to dark; quality fair, rather acid; flesh firm; color dark; yield light.

Beavers.—(*Perfect*).

Plant lacking in vigor; leaves small; color light; season medium to late; berry medium in size, color and flavor; shape short, conic with blunt point; flesh moderately firm; yield light; worthless here.

Beder Wood.—(*Perfect*).

Plant medium in size; sets few to medium number of runners; season second early; size of berries medium; shape irregular, mostly short conical, with blunt apex; color light to medium; quality fair; flesh rather soft and light; yield medium.

Brandywine.—(*Perfect*).

Blossoms large; clusters large on heavy stalks; plant large and vigorous; season medium to late; berries large, conical, often wedge or fan-shaped; color dark; quality good; flesh firm and red; medium in point of yield; one of the best pollenizers to set with imperfect varieties; requires high culture.

Cardinal.—(*Imperfect*).

Plant vigorous and spreading; clusters large; leaf large and dark green; runners few; season medium to late; berries large, somewhat irregular, shape medium conical to wedge tip; color medium crimson; flavor good, slightly acid; flesh firm; yield rather light; quite promising.

Challenge.—(*Perfect*).

Plant of medium size and vigor; light green; sets medium number of fair-sized runners; season medium early; berries

medium to large; shape irregular, often creased and divided, usually wedge-shaped, some having fan-shaped tip; color medium to dark crimson; quality fair; flesh medium in color and firmness; yield below medium.

Chespeake.—(*Perfect*).

Plant vigorous; foliage short, wrinkled; season medium to late; berries large, regular in form; short roundish-conic; color deep rich crimson, seeds yellow and very prominent, giving fruit a very attractive appearance; quality excellent; flesh firm; yield light; ranks high in quality and appearance, but lacking in productiveness; worthy of trial for home use.

Climax.—(*Perfect*).

Many stamens; plant medium in size; leaf light green; runners numerous; season early to medium; berries medium to large, nearly round, obscurely conical; bright crimson; flavor medium, rather acid; flesh red, moderately firm and of fair quality, slightly acid; late pickings very small in size; yield medium to good; not very promising.

Clyde.—(*Perfect*).

Plant large and vigorous; sets medium number of runners; season second early; berries medium to large, round conical with blunt apex; color light; quality medium to poor; flesh soft and color light; yield good; a fair commercial variety. Lacking in color and firmness.

Cooper.—(*Perfect*).

Plant medium to small; leaf light green; produces a medium number of runners; season early; shape conical with blunt apex; color and flavor fair; flesh moderately firm; yield light; not recommended.

Commonwealth.—(*Perfect*).

Plant medium in size and vigor; medium number of runners; season very late; size large; shape medium conic, sides concave; color dark crimson at base, growing lighter towards the tip; quality poor to medium; flesh firm, coarse and stringy; yield medium to light. A variety for late cropping only; size of fruit carried well in late pickings.

Corsican.—(*Perfect*).

Plant large and vigorous; leaf large; runners medium in number and very vigorous; season medium; berries large, medium conical, with blunt point; surface rough; color light; flesh light, of fair quality, rather soft; yield light; not recommended.

Dirigo.—(*Imperfect*).

Plant large and vigorous; leaf large and light green; clusters large; sets medium number of runners; season early; berries medium in size, short conical; color medium; flesh light, firm, of fair quality; season of ripening long; yield rather light.

Dornan. (See Uncle Jim.)

Ekey.—(*Perfect*).

Plant medium in size; leaf large; stem long, holding fruit well off the ground; season medium; berries large, long; deep crimson; flesh very dark, firm and good quality; yield rather light, possibly due to fact that plants mildewed very badly; otherwise a promising sort.

Enormous.—(*Imperfect*).

Runners many; season medium; berries medium to large, short wedge shaped; color medium crimson; quality fair, mod-

erately firm; ripens over a long period; yield medium; late berries ran very small. Not very promising.

Ernie.—(*Perfect*).

Plant large and vigorous; runners medium in number; season medium early; berries large, roundish-conic, with blunt point; color medium; flavor fair; flesh soft and light; yield good. Not recommended.

Fairfield.—(*Perfect*).

Plant medium size; season very early; berries medium size; shape somewhat irregular, usually long conic with distinct neck; apex blunt; color dark red; quality good; flesh red and firm; yield below medium. Quite promising as an early variety for market or home use.

Gen. De Wet.—(*Imperfect*).

Blooms late; plants large and vigorous; clusters many and large; season late; size large; shape short conical; color medium scarlet; flesh rather soft, of fair quality; yield medium; too soft for shipping.

Glen Mary.—(*Perfect*).

Plant large and vigorous; leaf large; clusters large; sets runners freely; season medium to late; berries large size; shape short conic with blunt tip; color medium to dull red; quality below medium; flesh quite firm; yield good. Not much used to fertilize pistillate varieties, but carry enough pollen for self fertilization; a very promising market sort; not recommended for fancy trade but one of the best all-round sorts where only one variety is to be planted.

Gen. Van Sant.—(*Perfect*).

Plant medium in size; season early to medium; berries large, medium conical, inclined to be necked; color dark crimson;

flesh soft, quality good; yield good; berries resemble Sen. Dunlap, being a little larger in size and lighter in color. Worthy of further trial for home use; not recommended for market.

Great Scott.—(*Imperfect*).

Plant medium vigorous; runners few and small; season medium; berries large and irregular, inclined to be divided, many being wedge-shaped; color dull red; flesh of poor quality and moderately firm; yield fair; below standard in appearance and quality.

Hummer.—(*Perfect*).

Flowers large in size; clusters many and large; plant very large and vigorous; runners abundant; season medium to late; berries large; shape irregular, mostly medium to long conical, inclined to be wedge-shaped; surface rough; color dark crimson; flesh medium in color and quite soft; yield good: similar to Uncle Jim, size of berries held well to last pickings. Not recommended, owing to its poor flavor and shipping qualities.

Klondyke.—(*Perfect*).

Plants large and very vigorous; leaf large; color light green; runners many and strong; clusters few, size small; season medium; berries medium in size, color and quality; shape short, roundish conic, blunt tip; flesh firm and dark: yield very light. Not recommended.

Latest.—(*Imperfect*).

Plant large and vigorous; runners few; flowers small; season very late; berries long conic to oblong; color medium dull crimson; flesh rather soft; quality medium to good. Plants should be set closely to insure a good stand; requires high culture. Worthy of trial where a late maturing variety is desired.

Lady Garrison.—(*Perfect*).

Many stamens; plant small and rather weak in appearance; sets runners freely; foliage blighted badly; berries medium in size, irregular in shape; color light; flesh moderately firm; quality good; crop very light, due to diseased condition of plants.

Louis Hubach.—(*Imperfect*).

Plants below medium in size; leaf small and dark green; runners numerous; season early; berries of medium size, nearly round; obscurely conical; color medium to dark; quality good; flesh medium in color and firmness; yield fair; late picking ran very small in size, possibly due to excessive number of plants. Not very promising.

Lucas.—(*Perfect*).

Plant and leaf medium in size; color dark green; medium number of runners; season medium early; size of berries large during first pickings, decreasing as season advances; shape roundish, obscurely conical, sometimes flattened; color medium to dark; quality fair, slightly acid; flesh medium in color and firmness; yield below medium. Not recommended.

Marshall.—(*Perfect*).

Plant large, stalky and vigorous; season early to medium; berries very large; shape roundish conic, inclined to wedge-shaped, with fan tip; color very deep rich crimson; quality excellent; flesh firm and very dark; yield light. Produces fancy berries when grown under favorable conditions; requires very high culture; buds very tender. Unreliable in most parts of this state.

Lyon.—(*Imperfect*).

Plant medium in size and vigor; leaf stem long; leaf small and light; runners many; season medium early; berries below

medium in size; shape long conical, with round pointed tip; color good; flesh dark, moderately firm, of good quality; yield medium; color and size of berries good; shape too long; resembles Warfield.

Maximum.—(*Perfect*).

Plant a good grower of medium size; season medium; berries of fair size; shape medium to long conical, with blunt tip; color medium; flesh moderately firm, of fair quality; yield rather light; not recommended. Similar if not identical to Corsican.

Mead.—(*Perfect*).

Plant medium and quite vigorous; size of clusters large; leaf large and dark; season medium; size medium to large; shape roundish, obscurely conical; color medium red; quality fair, slightly acid; below medium in firmness; yield medium to good. Quite promising.

Minute-man.—(*Imperfect*).

Plant medium in size and vigor; season second early; berries medium size; shape short round conical; color bright red; quality fair; flesh red and soft; yield good; rather soft for shipping to distant markets. Quite promising.

Morning Star.—(*Perfect*).

Plant vigorous and large; runners many; season medium; berries large, short conical, with round blunt apex; regular and attractive; color bright red; quality good; flesh firm and light; retains size well to end of season; yield irregular; under some conditions very productive, under others yielding a very light crop. Not recommended.

New Home.—(*Perfect*).

Plant medium in size; color of leaf very light; season late; size medium; shape regular, medium conic; color bright red;

quality medium tart; a good shipper; yield fair. Promising as a late shipping berry.

New Globe.—(*Perfect*).

Plants large and vigorous with fair number of runners; season late; size of berries at first picking large, later pickings medium to small; shape medium round conical, with blunt apex, surface rough; color fair; flesh light and moderately firm; quality good; yield medium. Quite promising.

New York.—(*Perfect*).

Plant medium in size and vigor; season medium early; berries large, rough, conical, sometimes oblong; color medium to dark, often having a white tip; quality above medium; flesh light and soft; yield below medium; similar to Uncle Jim. Fruit ripens unevenly; when well colored flesh is soft and salvy. Not recommended for market.

Nichols Granville.—(*Perfect*).

Plant large and vigorous; sets a medium number of runners of good size; season medium; berries large, roundish, oblong, medium apex; color medium to dark red, base usually dark, growing lighter at apex; flesh red, medium to firm; quality good; yield light; quite attractive in appearance; ripens unevenly. Has no particular merit for market use.

North Shore.—(*Perfect*).

Plant large and very vigorous; many stamens; season medium to late; leaf large and coarse; berries large; shape medium to long conical, somewhat irregular; color fair; flesh firm, dark red, good quality; yield light; otherwise quite promising as a late sort.

Oak's Early.—(*Perfect*).

Plant small; leaf dark; runners medium in number; season early to medium; size of berries small to medium; shape conical; color dark; quality fair; flesh moderately firm; yield very light. Plants lack vigor and productiveness.

Pan American.—(*Perfect*).

Plant medium in size and vigor; throws very few or no runners; inclined to grow in stools or clumps; fruit stalks medium in size and numerous; season medium to late; shape roundish conic with blunt point; color light; flesh soft and light; quality poor; yield light; said to develop best when planted on low, moist land; will fruit in the fall if blossoms are kept picked until August. Recommended for home use only where fall berries are desired, having little or no value for market purposes.

Parsons Beauty.—(*Perfect*).

Plants of medium size and vigorous; runners many; mid-season; berries large during first of season, decreasing as season advances; shape short to medium conical, often flattened with blunt point; color medium to dark; quality fair, slightly acid; flesh medium in color and firmness yield good; color, size and shape medium. One of the best perfect-flowering commercial varieties.

Perpetual or Alpine Perpetual or Alpine Monthly.—(*Perfect*).

Flowers very small; plant quite large and vigorous; leaf very small and light green; runners few and rather weak; season early to medium; berries very small; shape long conical, inclined to be necked; color dark scarlet; quality tasteless; seeds red, very prominent; flesh light, soft, salvy and tasteless; worthless.

Pineapple.—(*Perfect*).

Plant small and rather weak; runners few; season medium; berries roundish conic; color medium; quality good; flesh

soft; yield light. Test was incomplete, due to poor stand of plants.

President.—(*Imperfect*).

Plant medium; set very few runners; leaf dark green; season medium; berries large; shape irregular, mostly round, inclined to be divided; color dark glossy red; quality poor; flesh moderately firm; yield light; berries quite attractive in appearance; lacking in quality and productiveness.

Rear Guard.—(*Imperfect*).

Plants low growing and of medium size; season medium to late; berries medium to large; shape conical; color light; flavor medium, rather tart, quite juicy; flesh medium firm; color light; yield good; late picking good in size but rather rough. Some promise.

Rip Snorter.—(*Perfect*).

Plant medium in size and vigor; leaf dark green; sets a medium number of plants; berries small; shape distinctly necked, with long, blunt point; color and quality good; flesh soft; yield very poor; rusted very badly; of no value here.

Rochester.—(*Perfect*).

Plant medium in size and vigor; runners many and rather small; season medium early; berries medium size; late pickings were small; shape short conic; color medium to deep crimson; quality fair; flesh light, moderately firm; yield below medium. Not recommended.

Sample.—(*Imperfect*).

Plant vigorous; medium in size; season medium to late; berries large, maintaining size well to last pickings; conical, quite regular; color and flavor medium; length of season long; yield heavy; a very promising and productive sort for commercial use; one of the most dependable varieties for N. H. soils and markets.

Rough Rider.—(*Perfect*).

Plant medium in size and vigor; stems long and slender; season medium; berries large and irregular; color deep red; quality good; flesh firm and dark; yield light to medium; slightly affected by mildew.

Seaford.—(*Imperfect*).

Blooms early; clusters large; plant a fair grower; season early to medium; berries large; shape oblong, blunt pointed; surface rough; color dark; flesh light, of fair quality and moderately firm; yield medium; a fair mid-season variety.

Senator Dunlap.—(*Perfect*).

Blooms early; makes many medium to small plants; quite vigorous; leaf small; season early; berries medium to small; shape conical, distinctly necked; color dark crimson; quality good, slightly acid; flesh quite firm; yield medium to good; inclined to set too many runners and as a result berries of late pickings run small in size. One of the best perfect flowering early varieties for home or market growing.

Springdale.—(*Perfect*).

Plant good size and vigorous; runners medium in number; season medium early; berries small size, late pickings very small; shape roundish, obscurely conical; color medium crimson; flesh red, of good quality, rather soft. Of no value here.

Stevens Late Champion.—(*Perfect*).

Plant large and vigorous; runners many; season late; berries large and irregular, varying from medium conical to wedge-shaped; color and flavor medium; flesh moderately firm; color light; yield medium. A promising late variety.

3 W.—(*Perfect*).

Plant medium in size and vigor; runners few: season medium to early; produces medium-sized berries of good color and quality; shape short conic, with blunt tip, irregular; surface inclined to be rough; flesh dark and moderately firm; yield below medium; similar to if not identical with World's Wonder. Has no special merit for home or market use.

20th Century.—(*Imperfect*).

A good grower; runners many and vigorous; season medium; berries large, medium conical, blunt pointed, inclined to be irregular; color bright red; flesh light, moderately firm, of fair quality, rather tart. A fair commercial variety.

Uncle Jim or Dornan.—(*Perfect*).

Plant large and vigorous; leaf large; color light; season medium to late; berries large; shape medium to long conical, inclined to be flattened with wide tip; color medium; flesh rather soft and mealy; quality fair; yield medium to good; rather soft and light in color for a commercial berry.

Velvet.—(*Imperfect*).

Plant medium, fairly vigorous; leaf small and light in color; slightly affected by mildew; season medium; berry medium to large; short conic, blunt pointed, some slightly flattened; surface rough; color deep red; flesh light, moderately firm, quality good; yield fair. Berry unattractive in appearance.

Wonder.—(*Perfect*).

Plant large and vigorous; leaf large and light in color; runners many and vigorous; mid-season; berries medium to large; quite long, inclined to be fusiform; distinctly necked; color

medium red; flavor medium; flesh firm when partly colored, becoming soft and dry when well ripened; yield medium. Not recommended as a market berry.

Virginia.—(*Imperfect*).

Plant medium in size; leaf small and dark green; sets medium number of runners; season early; size of berries medium; shape roundish, obscurely conical; smooth and regular; color medium; quality fair; flesh medium to soft; yield medium to good; late pickings very small in size. Of some value as an early variety.

Wild Wonder.—(*Perfect*).

Plant small, producing many runners; season early to medium; size of berry medium; shape roundish, some obscurely conical, others slightly flattened; color light; ripens slowly and unevenly; quality fair; flesh moderately firm; yield light; similar to World's Wonder.

World's Wonder.—(*Perfect*).

Plant small; season early to medium; berries short roundish conic of medium size; color and quality fair; flesh soft to medium; color light; yield poor. Not recommended.

Yant.—(*Perfect*).

Plant medium in size; quite vigorous; sets medium number of runners; season medium to late; berries large, irregular, conical, often wedge-shaped, with blunt or fan-shaped tip; color light; quality medium to good; flesh below medium in color and firmness; similar to Hummer; yield fair. Berries too light and soft, while the plants lack productiveness.

SUMMARY.

1. Distance.—Plants standing 6 inches apart in wide matted rows gave the greatest average yield of number one berries.
2. Varieties.—There is no "best" variety, the following having proven the most reliable here: Early—Fairfield, Senator Dunlap, Virginia; mid-season—Sample, Glen Mary, Abington, Brandywine, Minute-man, Parson's Beauty; late—Stevens' Late Champion, Latest, Rear Guard.

   For growing on light soil, Minute-man and Haverland pollenized with Meade or Senator Dunlap; for medium to heavy soil, Sample pollenized with either Brandywine, Abington, Parson's Beauty, or Senator Dunlap; Glen Mary. The latter variety may be planted alone if desired. Plant new varieties in a small way, or better still, allow the Experiment Stations to test them for you.
3. Fertilization.—A method of fertilizing that has given splendid results is as follows: Plow under 8 to 12 cords of stable manure per acre and harrow in before setting plants 75 bushels of unleached ashes and 600 lbs. fine ground bone, or 700 lbs. of Formula A. About June 20 scatter along the row 300 lbs. of Formula B, and the following spring when plants are in blossom, apply broadcast 100 to 200 lbs. nitrate of soda per acre.
4. Irrigation.—Before considering the question of irrigating, be sure that the natural supply is not adequate when properly retained.
5. Width of Row.—The wide matted row about 2 1-2 feet wide, with alleys 18 to 20 inches, is believed to be the best method for commercial growers to adopt.
6. Remove all fruit stalks the first year to secure a strong stand of plants.
7. Wild vs. Cultivated.—Life is too short to pick wild strawberries. If we depend upon such, our home supply will be scanty. Fifty plants will set a bed 16 feet square, which, if properly cared for, will produce 50 quarts of berries at a cost not exceeding 3 cents per quart.

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